

Efficiency and specificity in microRNA biogenesis.

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Public Summary:

Scientific Abstract:

Primary microRNA cleavage by the Drosha-Dgcr8 'Microprocessor' complex is critical for microRNA biogenesis. Yet, the Microprocessor may also cleave other nuclear RNAs in a nonspecific manner. We studied Microprocessor function using mathematical modeling and experiments in mouse and human tissues. We found that the autoregulatory feedback on Microprocessor expression is instrumental for balancing the efficiency and specificity of its activity by effectively tuning Microprocessor levels to those of its pri-miRNA substrate.

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